

EVALUATION OF THE PUBLIC HEALTH SERVICE BIBLIOGRAPHY

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### ABSTRACT

The purpose of this analysis was to criticize the proposal that the Public Health Service Bibliography is a listing of papers, appearing after January 1, 1963, which support the judgment that cigarette smoking is a health hazard.

Papers were perused, evaluated and classified in one of five major categories: SUPPORTING (I), *i.e.*, supporting the judgment of the Advisory Committee to the Surgeon General that cigarette smoking is a health hazard; NON-SUPPORTING (II); CONTROVERSIAL (III); DISPUTABLE (IV) or POSSIBLE DUPLICATION (V). Sub-categorization was based on a multiple classification system.

Of the 1724 references cited in the Public Health Service Bibliography, 125 were eliminated since they were published prior to January 1, 1963. Ninety other papers were classified as inconsequential (NON-SUPPORTING) since they are translations and reports of, or commentaries on, scientific papers as presented in news stories, newsletters, speeches, books and magazines.

Of the remaining 1509 papers, 549 were randomly selected, evaluated and classified. Only 156 of these (28.4%) support the judgment that cigarette smoking is a health hazard. The vast majority (365 or 66.5%) are non-supporting.

According to the stated definition, no papers were classified as controversial. Twenty-one papers (3.8%) are disputable, since the validity of their conclusions concerning the health question depends upon a hypothesis or theory which is not established. Seven papers (1.3%) appear to represent duplications of data and conclusions already presented in Smoking and Health, but cited therein as Special Reports or as Personal Communications to the Surgeon General's Advisory Committee.

Since the Public Health Service Bibliography was claimed to consist of papers appearing after January 1, 1963, the 125 references published prior to this date should not be included. Thus, there are 1599 papers which apply. Considering the 90 papers evaluated and eliminated before random selection, as well as those randomly selected and evaluated (549), a total of 639 papers were classified (a sampling of approximately 40%). There is no reason to believe that the papers evaluated are not representative of the total.

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The purpose of this analysis was to criticize the proposal that the Public Health Service Bibliography is a listing of papers, appearing after January 1, 1963, which support the judgment that cigarette smoking is a health hazard (Smoking and Health, Public Health Service Publication No. 1103).

#### PARAMETERS FOR CLASSIFICATION

The classification system utilized in this investigation is presented in Table 1. Papers were classified in one of the following major categories: SUPPORTING (I), i.e., supporting the judgment of the Advisory Committee to the Surgeon General that cigarette smoking is a health hazard; NON-SUPPORTING (II); CONTROVERSIAL (III); DISPUTABLE (IV) or POSSIBLE DUPLICATION (V).

SUPPORTING. Papers cited as supporting (I) were subclassified as containing data comparable or similar to those presented in Smoking and Health (Ia) or as containing data not disclosed in Smoking and Health (Ib). An additional category (Ic) included papers containing supporting data together with non-supporting data which are inconsequential, inconclusive or supportive of concessions or negative findings. In some cases subclassification was not accomplished.

NON-SUPPORTING. Papers were classified as non-supporting (II) if they were: a) contradictory to the judgment that cigarette smoking is a health hazard, b) of no consequence to the question of a health hazard, c) inconclusive or d) supportive of concessions or negative findings.

Papers classified as contradictory (IIa) included those for which the conclusions and/or data oppose or contradict the judgment that cigarette smoking is a health hazard.

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Papers classified as inconsequential (IIb) were those for which the conclusions and/or data are of no consequence to the question of a health hazard. This category included papers dealing with health education, smoking prevention or treatment of the smoking habit (IIb.4), psychological or social aspects of smoking (IIb.5), botanical or biochemical aspects of the tobacco plant (IIb.6) and tobacco constituents which have been judged by the Advisory Committee to the Surgeon General to represent no significant or important health hazard (IIb.9).

Also categorized as inconsequential were editorials (IIb.2), statements of medical or scientific opinion (IIb.3), all or part of Smoking and Health (IIb.7), recapitulating reviews (IIb.8) and papers which do not pertain to the question of a health hazard (IIb.11, IIb.12).

Miscellaneous inconsequential papers (IIb.10) were those which are of no consequence per se to the question of a health hazard. Representative categories included:

1. Identification or quantitation of constituents of tobacco or tobacco smoke.
2. Diagnostic uses of nicotine.
3. Air pollution with no reference to tobacco.
4. Mortality data with no reference to tobacco.
5. Toxicities of substances not present in significant amounts in tobacco smoke (eg., ozone, sulfur dioxide).
6. Research methodology.
7. Area and migration differences in risk of dying.
8. Uncontrolled clinical impressions.

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Papers containing data which lead to no definite conclusions or results were classified as inconclusive (IIc).

Papers supportive of concessions (eg., beneficial effects of smoking) or negative findings (eg., absence of an association between smoking and a disease, disorder or effect) were classified in category IID.

CONTROVERSIAL. According to the stated definition (Table 1), no papers were found to be controversial (III). Papers containing supporting data along with non-supporting data which are inconsequential, inconclusive or supportive of concessions or negative findings were classified as supporting (Ic).

DISPUTABLE. This category primarily included papers dealing with the acute cardiovascular effects of smoking or of nicotine. Whether or not the acute cardiovascular effects of smoking represent a health hazard has not been established.

POSSIBLE DUPLICATION. Papers in this category included those which appear to consist of data and conclusions presented in Smoking and Health, but cited therein as Special Reports or as Personal Communications to the Surgeon General's Advisory Committee.

SUB-CLASSIFICATION. According to the nature of the classification system, multiple classification of a single paper was frequently possible. Thus, 631 sub-classification entries were recorded for the 549 papers selected (Table 2).

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## RESULTS

Of the 1724 references cited in the Public Health Service Bibliography, 125 were eliminated since they were published prior to January 1, 1963. (Of these five had been previously cited in Smoking and Health.) Ninety other papers presented in news stories, newsletters, books, speeches and magazines were also eliminated (IIb.1). Press sources in this category included, among others, Reader's Digest and Playboy Magazine.

Of the remaining 1509 papers, 549 were randomly selected, evaluated and classified. Based on the classification system developed, only 156 of these (28.4%) support the judgment of the Advisory Committee to the Surgeon General that cigarette smoking is a health hazard. The vast majority (365 or 66.5%) are non-supporting (Table 3 and Figure 1).

No papers were found to be controversial; i.e., containing supporting data together with non-supporting data which are contradictory to the judgment of the Advisory Committee that cigarette smoking is a health hazard.

Twenty-one papers (3.8%) which tend to be supporting are disputable since the validity of their conclusions concerning the health question depends upon a hypothesis or theory which has not been established.

Seven papers (1.3%) appear to represent duplications of data already presented in Smoking and Health, but cited therein as Special Reports or as Personal Communications to the Surgeon General's Advisory Committee.

Table 4 lists the number and per cent of entries in each sub-category. Of the 549 papers selected randomly, 10 actually contradict the judgment that

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cigarette smoking is a health hazard (IIa). Eight papers (1.3%) are editorials (IIb.2), 9.7% contain unsubstantiated medical or scientific opinion or conjecture (IIb.3), 5.5% deal with health education, smoking prevention or treatment of the smoking habit (IIb.4) and 4.1% deal with psychological or social aspects of the tobacco habit (IIb.5). There were 10 papers (1.6%) which deal with botanical or biochemical aspects of the tobacco plant (IIb.6), and 104 papers contain recapitulations of previously published data without adding novel interpretation (IIb.8). A number of papers (22) are not even related to the question of the relationship of tobacco to the health of men and women (IIb.11, IIb.12).

There were 48 papers (7.6%) concerned with tobacco constituents which have been judged by the Surgeon General's Advisory Committee to represent no significant or important health hazard and which fail to contradict this judgment (IIb.9). This category included papers dealing with the acute oral toxicity or pharmacologic activity (other than acute cardiovascular effects) of substances such as nicotine. That nicotine has pharmacologic activity is not disputed. However, the chronic toxicity of nicotine as associated with tobacco use is very low and probably does not represent a significant or important health hazard. In addition, the pharmacological effects of nicotine at dosage levels absorbed from smoking are comparatively small, and there is no acceptable evidence that prolonged exposure to nicotine creates either dangerous functional change of an objective nature or degenerative disease (Smoking and Health, pp. 73-75).

Twenty-eight papers (4.4%) are inconclusive (IIc) and 6.3% support

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negative findings or concessions (III d).

Twenty-one papers (3.3%) were classified as disputable (IV) since they demonstrate acute cardiovascular effects due to smoking or to nicotine. Whether or not the acute cardiovascular effects of smoking represent a health hazard has not been established. The acute cardiovascular effects of smoking are like those caused by nicotine (Smoking and Health, p. 317). The chronic toxicity of nicotine as associated with tobacco use is very low and probably does not represent a significant or important health hazard, and the pharmacological effects of nicotine at dosage levels absorbed from smoking are comparatively small (Smoking and Health, pp. 74-75). In addition, the acute cardiovascular effects of smoking do not account well for the observed association between cigarette smoking and coronary disease, and the association of smoking with other cardiovascular disorders is not well established (Smoking and Health, p. 38).

Seven papers appear to represent duplications of data already presented in Smoking and Health (V). For example, Dr. Hammond, after preparing an extensive report of his studies in 25 states, is apparently attempting to publish the results of each state individually. Certain of these papers are follow-up studies and include additional cases collected after the termination of the original study, but others merely represent a recapitulation of data which have apparently been presented to the Surgeon General in a Special Report.

Considering the 90 papers evaluated and eliminated before random selection (i.e., those which are translations and reports of, or commentaries on, scientific papers as presented in news stories, newsletters, speeches,

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books or magazines, IIB.1) as well as those papers randomly selected and evaluated, a total of 639 papers were classified (Table 5 and Figure 2). Of these 156 (24.4%) support the judgment that cigarette smoking is a health hazard. The vast majority are non-supporting (455 or 71.2%).

Since the Public Health Service Bibliography was claimed to consist of papers appearing after January 1, 1963, the 125 references which were published prior to this date should not be included. Thus, there are 1599 references which apply. Of these 639 were evaluated and classified, a sampling of approximately 40%. There is no reason to believe that the papers evaluated are not representative of the total.

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### SUMMARY

1) Of the 1724 references cited in the Public Health Service Bibliography, 125 were published prior to January 1, 1963.

2) Ninety other papers were presented in news stories, newsletters, books, speeches and magazines (IIB.1).

3) Of the remaining 1509 papers, 549 were randomly selected and evaluated. Only 28.4% of these were found to support the judgment of the Advisory Committee to the Surgeon General that cigarette smoking is a health hazard. The vast majority were non-supporting (66.5%).

4) According to the stated definition, no papers were classified as controversial. Twenty-one papers (3.8%) are disputable, since the validity of their conclusions concerning the health question depends upon a theory or hypothesis which has not been established. Seven papers (1.3%) appear to be duplications of data and conclusions already presented in Smoking and Health, but cited therein as Special Reports or as Personal Communications to the Surgeon General's Advisory Committee.

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TABLES AND FIGURES

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TABLE 1

CLASSIFICATION

- I. SUPPORTING. The paper supports the judgment of the Advisory Committee to the Surgeon General that cigarette smoking is a health hazard.
- a. With data that are similar or comparable to those presented in Smoking and Health
  - b. With data that are not disclosed in Smoking and Health
  - c. With supporting data together with non-supporting data which are inconsequential, inconclusive or supportive of concessions or negative findings.
- II. NON-SUPPORTING. The paper does not support the judgment of the Advisory Committee to the Surgeon General that cigarette smoking is a health hazard.
- a. With conclusions and/or data that oppose or contradict the judgment that cigarette smoking is a health hazard
  - b. With conclusions and/or data which are inconsequential
    - 1) Translations and reports of, or commentaries on, scientific papers as presented in news stories, newsletters, speeches, books and magazines
    - 2) Editorials
    - 3) Medical or scientific opinion, comment or conjecture, including statements or conclusions for which scientific objectivity cannot be established by the reader (absence of literature citations or data to substantiate a statement or conclusion)
    - 4) Papers dealing with health education, smoking prevention or treatment of the smoking habit
    - 5) Papers dealing with psychological or social aspects of smoking, including attitudes, behavior, motivation and recreational activities of smokers
    - 6) Papers dealing with botanical and biochemical aspects of the tobacco plant
    - 7) All or part of Smoking and Health, including specific references cited therein
    - 8) Recapitulating statements, conclusions or data, including reviews, editorial reviews, and annotations, unless novel or unique interpretations of the original research data are presented by the reviewing author(s)

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TABLE 1, continued

- II. b. 9) Papers dealing with tobacco constituents which have been judged by the Advisory Committee to the Surgeon General to represent no significant or important health hazard, unless such papers present novel or unique interpretations or judgments which contradict those of the Committee
- 10) Miscellaneous
- 11) Papers which do not pertain to the question of the relationship of tobacco to the health of men and women (with no tobacco reference)
- 12) Papers which do not pertain to the question of the relationship of tobacco to the health of men and women (containing a tobacco reference)
- c. With data that are inconclusive, leading to no definite conclusion or result
- d. With conclusions and/or data which are supportive of concessions or negative findings, including those concessions and negative findings presented in Smoking and Health
- III. CONTROVERSIAL. The paper contains supporting data together with non-supporting data which are contradictory or in opposition to the judgment of the Advisory Committee to the Surgeon General that cigarette smoking is a health hazard.
- IV. DISPUTABLE. The validity of the statements or conclusions concerning the question of a health hazard depends upon a theory or hypothesis which is not established.
- V. POSSIBLE DUPLICATION. The paper appears to consist of data and conclusions presented in Smoking and Health, but has been cited therein as a Special Report or as a Personal Communication to the Surgeon General's Advisory Committee.

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TABLE 2  
INCIDENCE OF MULTIPLE CATEGORIZATION  
OF 549 PAPERS SELECTED RANDOMLY FROM  
THE PUBLIC HEALTH SERVICE BIBLIOGRAPHY \*

CATEGORY	NO. OF PAPERS WITH TWO CATEGORIES	NO. OF PAPERS WITH THREE CATEGORIES
I.	4	0
II.	66	6
III.	0	0
IV.	0	0
V.	0	0

\* 125 papers published prior to January 1, 1963 and 90 papers presented in news stories, newsletters, speeches, books and magazines were eliminated from the initial list of 1724 references before the random selection.

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TABLE 3

CLASSIFICATION OF 549 PAPERS SELECTED RANDOMLY  
FROM THE PUBLIC HEALTH SERVICE BIBLIOGRAPHY \*

CATEGORY		NO. OF PAPERS	PER CENT
I.	SUPPORTING	156	28.4
II.	NON-SUPPORTING	365	66.5
III.	CONTROVERSIAL	0	0
IV.	DISPUTABLE	21	3.8
V.	POSSIBLE DUPLICATION	7	1.3
TOTAL		549	100.0

\* See footnote, Table 2.

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TABLE 4

SUB-CLASSIFICATION OF 549 PAPERS SELECTED RANDOMLY  
FROM THE PUBLIC HEALTH SERVICE BIBLIOGRAPHY \*

CATEGORY	ENTRIES**	PER CENT
I	58	9.2
Ia	42	6.7
Ib	10	1.6
Ic	50	7.9
IIa	10	1.6
IIb.2	8	1.3
b.3	61	9.7
b.4	35	5.5
b.5	26	4.1
b.6	10	1.6
b.7	3	0.5
b.8	104	16.5
b.9	48	7.6
b.10	48	7.6
b.11	12	1.9
b.12	10	1.6
IIc	28	4.4
IIId	40	6.3
III	0	0
IV	21	3.3
V	7	1.1
TOTAL	631	100.0

\* See footnote, Table 2.

\*\* 631 entries were recorded for the 549 papers  
randomly selected.

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TABLE 5

CLASSIFICATION OF 639 PAPERS SELECTED FROM  
THE PUBLIC HEALTH SERVICE BIBLIOGRAPHY \*

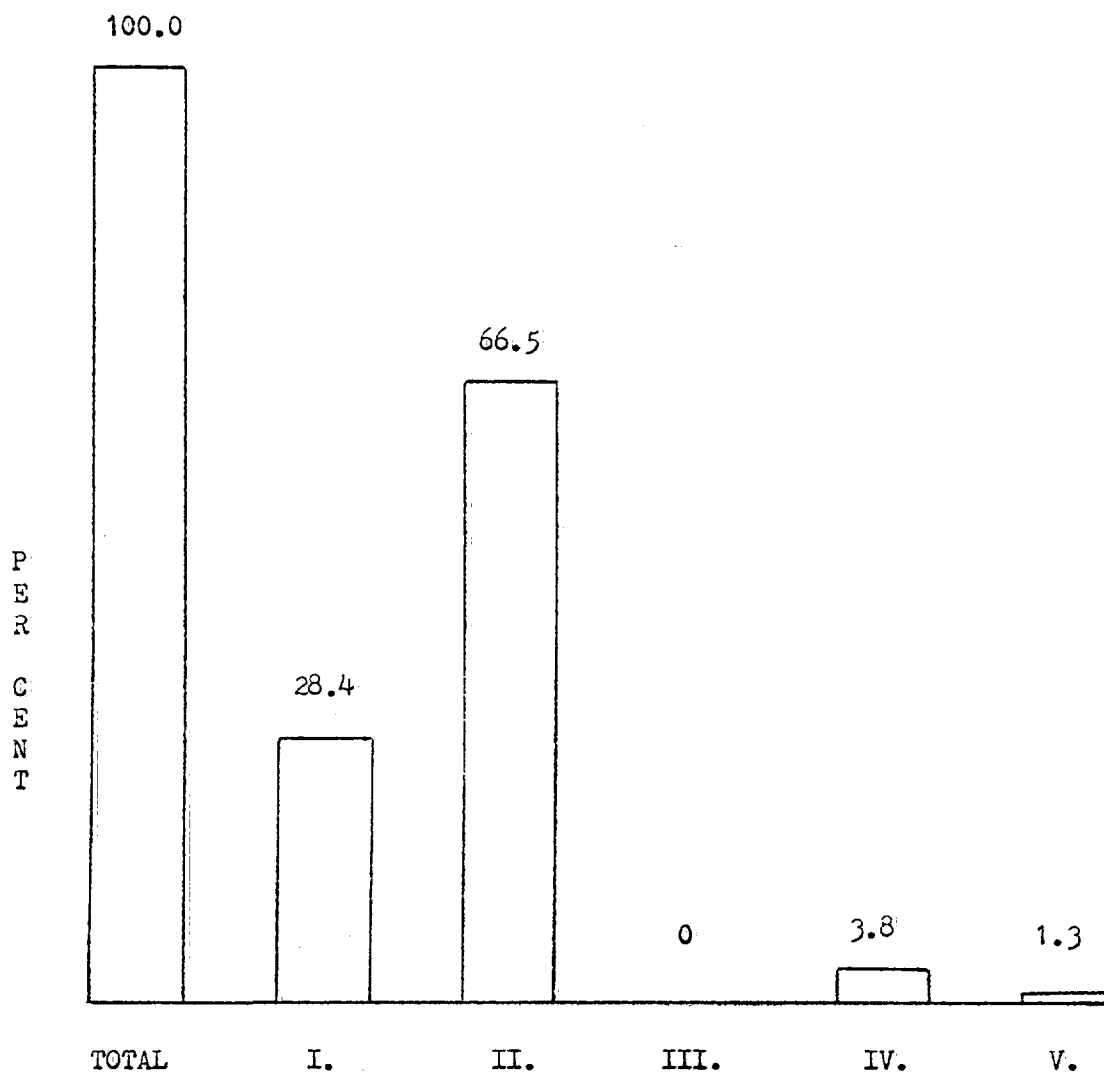
CATEGORY	NO. OF PAPERS	PER CENT
I. SUPPORTING	156	24.4
II. NON-SUPPORTING	455	71.2
Randomly selected	365	
Initially eliminated (IIb.1)	90	
III. CONTROVERSIAL	0	0
IV. DISPUTABLE	21	3.3
V. POSSIBLE DUPLICATION	7	1.1
TOTAL	639	100.0

\* 90 papers were classified and separated before the random selection (IIb.1). 549 additional papers were selected randomly.

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FIGURE 1

CLASSIFICATION OF 549 PAPERS SELECTED RANDOMLY  
FROM THE PUBLIC HEALTH SERVICE BIBLIOGRAPHY \*



I. SUPPORTING the judgment that cigarette smoking is a health hazard.

II. NON-SUPPORTING

III. CONTROVERSIAL

IV. DISPUTABLE

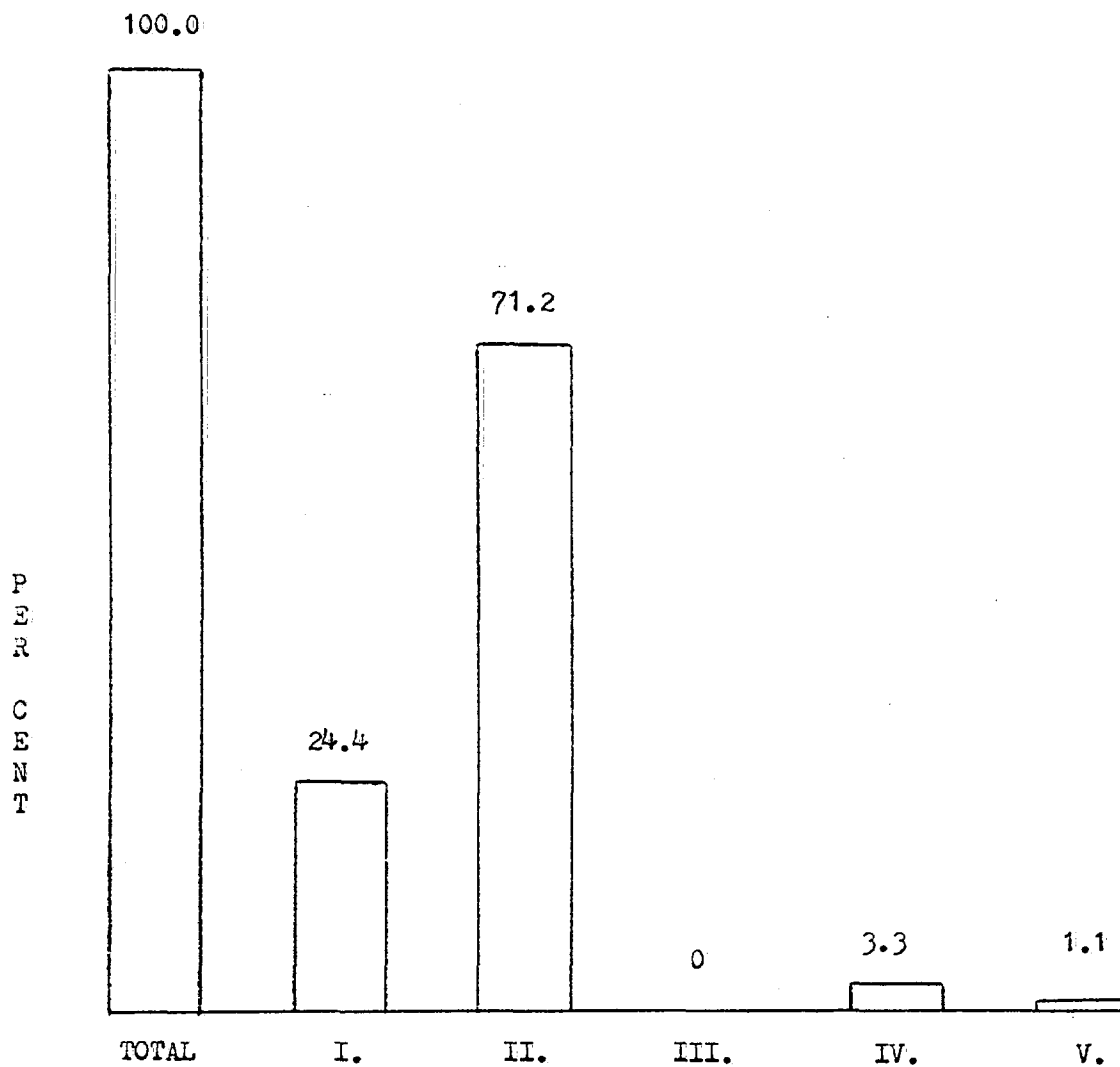
V. POSSIBLE DUPLICATION

\* See footnote, Table 2.

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FIGURE 2

CLASSIFICATION OF 639 PAPERS SELECTED FROM  
THE PUBLIC HEALTH SERVICE BIBLIOGRAPHY \*



I. SUPPORTING the judgment that cigarette smoking is a health hazard

II. NON-SUPPORTING

III. CONTROVERSIAL

IV. DISPUTABLE

V. POSSIBLE DUPLICATION

\* See footnote, Table 5.

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